DRAFT

CORRECTIVE MEASURES STUDY (CMS)
MARSH AREA BETWEEN AOC 1 & AOC 8 (AOC 12)

OCCIDENTAL CHEMICAL CORPORATION
DELAWARE CITY, DELAWARE

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4.30 AOC 12

4.30.1 OVERVIEW

Description

AOC 12 (the Marsh Area Between AOC 1 and AOC 8) was defined in the Groundwater FFS as an area from the northern limit of SWMU 3 (Waste Lake 3) to the southern edge of AOC 8 (the Tributary), which was potentially impacted by chlorobenzenes released from the leaking Standard Chlorine Pipeline (SCP). Figure 4.30.1 presents the location of AOC 12 and surrounding SWMUs/AOCs. Figure 4.30.2 presents a 2007 aerial photo of AOC 12. The southern boundary of AOC 12 was drawn to include upgradient groundwater monitoring wells, which are located within SWMU 3. AOC 12 covers approximately five acres, of which approximately three acres is marsh.

History

The historical conditions of AOC 12 are depicted by aerial photographs of the Site, and are presented as Figures in Section 2.0. Specifically, Figures 2._ (1954) and 2._ (1962) show the area prior to the construction of the facility, Figure 2._ shows the area during the 1970s, and Figure 4.30.2 (2007) shows the present configuration. Prior to 1962, AOC 12 was inundated by Red Lion Creek. Between 1954 and 1962 (Figures 2._ and 2._), vegetation began to encroach into the AOC 12 area creating a marsh.

A SCP IM was completed in 2004 to address releases of chlorobenzenes that resulted from leaks in the SCP (i.e. AOC 1, see Section 4.19). The IM removed the pipeline and excavated the soils beneath the pipeline down to the water table, approximately five to six feet mean seal level (msl). Following the completion of the IM, the area was regraded down to the marsh. The former berm is now a narrow east-west trending area with an elevation of approximately five to six feet msl and is lightly vegetated. Two monitoring wells (A-62S and A-62D) were installed in this area to replace the three wells that had to be abandoned during the IM (A-41S, A-42S, and A-42D).

In 2007, AOC 12 [Marsh Area between the 2004 Standard Chlorine Pipeline Interim Measure (AOC 1) and the Tributary (AOC 8)] was investigated to address the hypothesis that it is a potential ongoing source of chlorobenzenes to the Tributary (AOC 8) where there are ecological exposure pathways. Sampling of the Tributary (AOC 8) in 2004 identified total chlorobenzenes as an issue in surface water at STATION-I, STATION-J, and STATION-K. Total chlorobenzenes concentrations at STATION-J and STATION-K exceeded the proposed cleanup goal for total chlorobenzenes (0.62 mg/L). However, there was no known chlorobenzene source for these three STATION samples. Thus, the investigation of the AOC 12 marsh area, which is located upgradient of AOC

8, was initiated. Tributary surface water sampling ongoing since the start of 2007 and 2008 has demonstrated that currently, STATION-I and STATION-J are below the total chlorobenzenes cleanup goal, only STATION-K exceeds the goal.

Although AOC 12 is not considered as an area for potential human or ecological exposure, it was identified as a potential source to AOC 8 and the investigations were proposed and designed to assess conditions in the marsh area. The investigation of AOC 12 was completed in 2007 and the results are documented in the May 2008 Report, *AOC 12 2007 Investigation Results*. The 2007 field efforts included sampling of surface water, sediment, and pore water from temporary piezometers. In addition to the 2007 AOC 12 sampling events, several samples were collected at the southeast corner of AOC 12, near the discharge of Outfall 003, during the investigation of SWMU 6 (the Stormwater Drainage Pond) in 2007. The 2007 sample locations are shown on Figure 4.30.1. Based on the investigation results, AOC 12 is not related to exceedances of the total chlorobenzenes cleanup goals in the Tributary surface water. It is not considered a significant potential ongoing or future source of chlorobenzenes to the Tributary.

Mercury sampling was performed within AOC 12 during the 2007 investigations; however, the mercury data have been assigned to the overlapping AOC 14 (Surface Runoff to the Tributary), for the CMS evaluation.

Finally, groundwater samples have been collected in and surrounding AOC 12 as part of the routine PMP monitoring program. The locations of the monitoring wells are shown on Figure 4.30.1.

Current Status

The marsh area of AOC 12 remains unused, and covered with phragmites. Based on the 2007 investigation results, AOC 12 is not related to exceedances of the total chlorobenzenes cleanup goals in the Tributary surface water.

4.30.2 SUMMARY OF SWMU DOCUMENTATION

Table 4.30.1 presents a list of the documents that were reviewed and considered in the assessment of AOC 12.

4.30.3 RELEVANT DATA

This section presents a summary of the data considered by the CMS for AOC 12. Table 4.30.2 lists the relevant sample locations for AOC 12. Figure 4.30.1 presents the sample locations.

4.30.3.1 SOIL

The soils along the southern limit of AOC 12 are addressed as part of the AOC 1 IM. There are no other soils in AOC 12.

4.30.3.2 WASTE

There are no wastes in AOC 12.

4.30.3.3 GROUNDWATER

There are data from thirteen monitoring wells in AOC 12: A-18, A-33S, A-33D, A-41S (abandoned), A-42S (abandoned), A-42D (abandoned) A-62S, A-62D, A-67S, A-67D, A-68S, A-68D, and R-112] associated with AOC 12. Groundwater results from 2007 are considered relevant. Therefore, historical data from the three abandoned wells are not considered.

4.30.3.4 SEDIMENT

There are seven sediment samples in AOC 12. All of the samples were collected during the 2007 investigations of AOC 12 and SWMU 6. Three of the samples were collected from the bottom of the east-west ditch, and four of the samples were collected just to the north of the new Outfall 003. There is no ecological exposure pathway to these sediments.

4.30.3.5 SURFACE WATER

The marsh area of AOC 12 is generally inundated with a thin layer of surface water. The *AOC 12 Investigation Results Report* defined this standing water in the marsh as the "phragmites surface water." Eleven samples of the phragmites surface water were

collected in AOC 12. Three of the samples were collected in the east-west ditch, one sample was collected near the discharge of Outfall 003, one sample was collected close to where the Outfall 003 discharge flows into AOC 8, five samples were collected at the northern ends of the mini-piezometer rows, and one seep sample was collected at the bottom of the slope up to AOC 10. There is no ecological exposure pathway to the marsh area surface water.

4.30.4 RISK SCREENING

There are no human or ecological exposure pathways in the marsh area. Thus, there are no applicable screening criteria for surface water or sediment. Note that, at the request of EPA, a comparison to the screening criteria was provided in the May 2008 *AOC 12 2007 Investigation Results Report.* The relevant data are discussed in the Conceptual Model (Section 4.30.6) and the Final Remedy Evaluation (Section 4.30.8). Because the surface water in the marsh flows to the Tributary, AOC 12 represents a potential source. Therefore, the marsh surface water data are compared to the total chlorobenzenes surface water cleanup goal for the Tributary.

The groundwater data were compared to the EPA GW-1 criteria (MCLs and RBCs). All 2007 groundwater data from the wells listed in Table 4.30.2 were included in the screening.

Groundwater Screening (GW-1)

The following table lists the COCs based on the screening of the 2007 groundwater data.

Groundwater Screening Parameters	*Units*	*Federal MCLs or RBCs*	*Criteria Type*	*Number of Samples*	*Number of Detects Above Criteria*	*Maximum Detected*
Volatile Organic Compounds						
1,3-Dichlorobenzene	ug/L	18.25	RBC	13	1	180
1,4-Dichlorobenzene	ug/L	75	MCL	13	1	340
Benzene	ug/L	5	MCL	13	1	19
Chlorobenzene	ug/L	100	MCL	13	1	470
Chloroform (Trichloromethane)	ug/L	0.155	RBC	13	4	2.4 B
Methyl Tert Butyl Ether	ug/L	2.64	RBC	13	2	6
Tetrachloroethene	ug/L	5	MCL	13	6	21
Metals						
Iron	ug/L	10950	RBC	11	2	60200
Iron (Dissolved)	ug/L	10950	RBC	11	2	58200
Manganese	ug/L	730	RBC	11	7	9740
Manganese (Dissolved)	ug/L	730	RBC	11	8	9730
Mercury	ug/L	2	MCL	17	4	3.9
Mercury (Dissolved)	ug/l	2	MCL	17	4	2.6
Thallium	ug/L	2	MCL	11	5	7.1 J
Thallium (Dissolved)	ug/L	2	MCL	11	7	8.8 J

Groundwater Screening Parameters	*Units*	*Federal MCLs or RBCs*	*Criteria Type*	*Number of Samples*	*Number of Detects Above Criteria*	*Maximum Detected*
General Chemistry						
Ammonia	ug/L	209	RBC	11	5	5050

Notes:

- The metals summary includes both the total and dissolved samples. Thus, there will be two results for each metal.
- Non-detects are counted in the Number Results.
- Non-detects are considered to be less than the screening criterion.
- Number Results and exceedences do not include field duplicate samples.

CHLOROBENZENES

Groundwater impacts in AOC 12 associated with the release in AOC 1 are limited to the Fill and Recent Sediments beneath and downgradient of the SCP excavation. All of the chlorobenzenes exceedences occur in well A-62S, screened in the Recent Sediments beneath the former pipeline. A benzene exceedence (associated with the Standard Chlorine chlorobenzene product) was also observed in A-62S. There is essentially no groundwater flow in the Recent Sediments due to the low permeability. Groundwater flow does occur in the Columbia Sands monitored by A-62D. There were no exceedences for chlorobenzenes in the deeper Columbia well, A-62D. Thus, the chlorobenzenes are not a Key COC for AOC 12. As noted previously, the groundwater in AOC 12 flows into AOC 9 and AOC 7 before discharging into the Tributary. Thus, remedial action for any exceedances of MCLs will be managed in AOC 9 and AOC 7.

MERCURY

Mercury is not a parameter related to the Standard Chlorine Pipeline. In 2007, there was one total mercury exceedence, 0.0036 mg/L, versus the MCL, 0.002 mg/L, in A-62D. The dissolved mercury was below the MCL and in the four sampling events in 2005 and 2006, both total and dissolved mercury were below the MCL. This mercury is related to AOC 9; it will be addressed under that AOC.

Mercury exceedences were also observed at A-67D in all four quarters of 2007. The maximum concentration was 0.0039 mg/L, versus the MCL, 0.002 mg/L. The data exhibit a declining trend.

OTHER PARAMETERS

In 2007 there were four exceedences for chloroform (A-18, A-33D, A-62D, and A-67D). Three chlorform results (A-18, A-33D, and A-62D) were not detected substantially above the level reported in lab or field blanks ("B-qualified"). The detection at A-67S was 0.001 mg/L. The exceedances for chloroform are due to the very low Region III RBC for chloroform (0.0001555 mg/L). Screening against the MCL for total trihalomethanes,

which includes chloroform, shows no exceedances in AOC 12. Chloroform is from AOC 5 prior to the construction of the barrier wall and it is not associated with AOC 12.

There were exceedences of MTBE and PCE in several wells. However, the upgradient well A-18 is also impacted by these parameters. The MTBE and PCE are not associated with AOC 12; they are from an offsite upgradient source.

There were exceedences for:

- iron in A-33S;
- manganese in A-18, A-33S&D, A-62D, A-67S and A-68S; and
- thallium in A-33S&D, A62S, A-67S&D, and A-68S&D.

These metals are not associated with the Standard Chlorine product. However, they are likely naturally occurring metals that have been solubilized naturally or enhanced by changes in groundwater redox conditions. The groundwater redox is influenced by the release of chlorobenzenes. Once the chlorobenzenes are remedied through final remedies at AOC 7 and AOC 9, the iron, manganese, and thallium should drop to background levels.

4.30.5 IDENTIFICATION OF KEY COCS

Figure 4.30.3 presents a "dot plot" of the total chlorobenzene results for all relevant media in AOC 12. The dots represent a comparison of the total chlorobenzene results to cleanup levels. The groundwater results are represented by circles, the sediment results by squares, and the surface water results by triangles.

Sediment and Surface Water

The AOC 12 marsh area was investigated in 2007 to determine whether or not the area was contributing chlorobenzenes to the Tributary surface water at levels in excess of the total chlorobenzenes cleanup goal. Thus, by definition chlorobenzenes are the Key COCs in AOC 12 marsh area.

Groundwater

Groundwater in AOC 12 flow into and will be managed by the remedial actions for AOC 9 and AOC 7. Chlorobenzenes above screening levels are present in well A-62S, completed in the Fill and Recent Sediments beneath AOC 1. Groundwater in all other AOC 12 wells was below the screening criteria for chlorobenzenes. The elevated metals in groundwater may be related to the release of chlorobenzenes and influence of the

chlorobenzenes on the metals solubility. Once the chlorobenzenes are addressed through final remedies at AOC 7 and AOC 9, the metals levels should drop to background.

Mercury is not a concern in AOC 12.

4.30.6 CONCEPTUAL MODEL

The Conceptual Model section lays the foundation for the understanding of chlorobenzenes in AOC 12. A detailed investigation of the AOC 12 marsh area was completed in 2007 and the findings were presented in the *AOC 12 Investigation Results Report*. The following is a summary of that discussion.

Figure 4.30.4 presents a north-south cross section though AOC 12. Chlorobenzenes released from the SCP have migrated into the marsh area and penetrated vertically into the Shallow Marsh Sediments and the Recent Sediments beneath AOC 1. Chlorobenzenes exceeded the screening criteria in the groundwater monitoring well A-62S completed in the Recent Sediments. However, chlorobenzenes are not present above MCLs in the Columbia Sands. The Recent Sediment are very low permeability silts and clays and there is essentially no advective transport within the Recent Sediments. Due to geologic conditions, groundwater in the Columbia Sands does not discharge to the Tributary at the northern limit of AOC 12. Rather, the Columbia Sands groundwater in AOC 12 diverges, with approximately half flowing to AOC 7 and the other half to AOC 7... Groundwater remediation will be addressed as part of AOC 7 and AOC 9.

The data collected during the 2007 marsh area investigations demonstrate that the distribution of high concentration areas of chlorobenzenes are localized within the marsh. However, these areas are not affecting any exceedances of the total chlorobenzenes cleanup goal in AOC 8. Further, there is no human health or ecological exposure pathway to AOC 12.

Water is present in the Shallow Marsh Sediments and the Recent Sediments. However, there is essentially no flow in either. The Shallow Marsh Sediments are transmissive but the horizontal hydraulic gradient is near zero due to the presence of an overlying layer of surface water. The Recent Sediments are composed of very low permeability materials and flow through these sediments is essentially zero due to the low permeability. Thus, there is essentially zero advective transport of chlorobenzenes from AOC 12 to AOC 8 in the subsurface.

The sole migration pathway for chlorobenzenes from the marsh area of AOC 12 to AOC 8 is via the phragmites surface water. The sediments are essentially immobile in the marsh. Chlorobenzenes will diffuse from the Shallow Marsh Sediments and Recent Sediments to the phragmites surface water. The surface water then migrates to the Tributary. Thus, phragmites surface water concentrations are the appropriate point of reference, not sediment concentrations.

Based on the 2007 investigations, chlorobenzenes in the phragmites surface water was below the total chlorobenzenes cleanup goal for the Tributary surface water. Thus, the AOC 12 marsh area does not appear to be related to exceedances of this goal in the Tributary.

4.30.7 CORRECTIVE ACTION OBJECTIVES

Corrective action objectives (CAOs) have been developed to protect human health and the environment for the current land use and for potential future land uses of the Site. The CAOs consider the Cleanup Goals for the Site and the potential exposure and transport pathways identified above. The CAOs are the basis for the identification of remedial actions to be considered for AOC 12.

The CAOs for AOC 12 are summarized below:

Groundwater

- Reduce the Key COCs mass flux from groundwater to the Tributary to assist in achieving surface water cleanup goals as soon as practicable, and
- Implement remedial actions in the groundwater to:
  - Reduce the mass and/or mobility of the groundwater Key COCs
  - Achieve groundwater MCLs

4.30.8 FINAL REMEDY EVALUATION

No further action is required for the AOC 12 sediment and surface water. Groundwater will be addressed in the final remedies of AOC 7 and AOC 9.

MARSH AREA BETWEEN AOC 1 AND AOC 8
(AOC 12)

NORTH-END ROW A
NORTH-END ROW C
NORTH-END ROW E
FLOW-TRIB
NORTH-END ROW H
NORTH-END ROW I
A-67D
A-67S
FLDA SEEP WATER
ROW A DITCH SEDIMENT
ROW A DITCH WATER
ROW D DITCH SEDIMENT
ROW D DITCH WATER
ROW G DITCH SEDIMENT
ROW G DITCH WATER
OF003-3
OF003-4
RIPRAP
OF003-2
OUTFALL 003
OF003-1
A-68S
A-68D
A-62S
A-62D
24" STM
A-33S
A-33D
R-112
SUMP 1
SUMP 2
FORMER STORM
DRAINAGE POND
(SWMU 6)
A-18

N

0 40 80ft

LEGEND

- PROPERTY BOUNDARY
- AOC 12 BOUNDARY
- BARRIER WALL LOCATION
- DITCH - SURFACE WATER FLOW PATH
- DRAINAGE PATH
- WATER TABLE WELL LOCATION (RECENT AND COLUMBIA)
- SEDIMENT SAMPLE LOCATION JULY 2007
- SURFACE WATER SAMPLE LOCATION JULY 2007

figure 4.30.1

AOC 12 - MARSH AREA BETWEEN AOC 1 AND AOC 8
LOCATION MAP AND RELEVANT DATA SAMPLE LOCATIONS
CORRECTIVE MEASURES STUDY
GSHI, Delaware City, Delaware

Glenn Springs Holdings, Inc.

TOPOGRAPHIC SURVEY: TETRATECH, MARCH 2007, DELAWARE STATE PLANE, NAD 27, NGVD 29

07462-99912(047)GN-WA126 AUG 08/2008

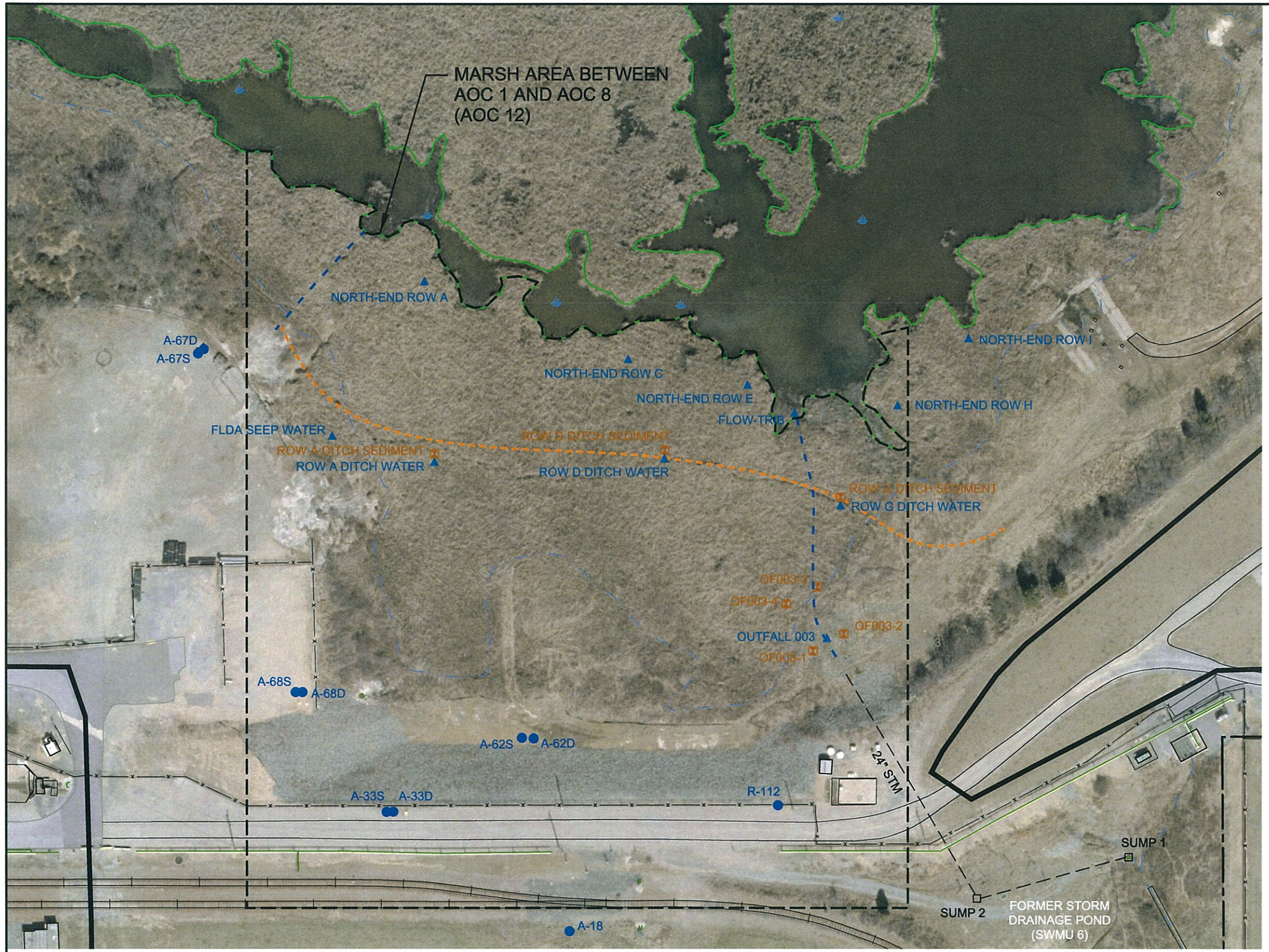


figure 4.30.2

AOC 12 - MARSH AREA BETWEEN AOC 1 AND AOC 8
2007 AERIAL PHOTOGRAPH
CORRECTIVE MEASURES STUDY
GSHI, Delaware City, Delaware

Glenn Springs Holdings, Inc.

TOPOGRAPHIC SURVEY: TETRATECH, MARCH 2007, DELAWARE STATE PLANE, NAD 27, NGVD 29

07462-99912(047)GN-WA127 AUG 08/2008

NOTES:

1) TOTAL CHLOROBENZENES IS THE SUM OF 1,2,4-TRICHLOROBENZENE, 1,2-DICHLOROBENZENE, 1,3-DICHLOROBENZENE, 1,4-DICHLOROBENZENE AND CHLOROBENZENE. DOES NOT INCLUDE BENZENE.
2) GROUNDWATER CONCENTRATIONS ARE COMPARED TO EPA SCREENING CRITERIA. SEDIMENT AND SURFACE WATER CONCENTRATIONS ARE COMPARED TO CLEANUP GOALS.
3) GROUNDWATER RESULTS ARE THE MAXIMUM CONCENTRATIONS FROM THE 2007 SAMPLING EVENTS.
4) SEDIMENT RESULTS ARE FROM THE 2007 INVESTIGATION AND THERE IS ONE SAMPLE FOR EACH LOCATION. SEDIMENT SAMPLES WERE COLLECTED FROM A DEPTH INTERVAL OF 0 – 0.5 FEET.
5) SURFACE WATER RESULTS ARE FROM THE 2007 INVESTIGATION. THERE IS ONE SAMPLE FOR EACH LOCATION WITH THE EXCEPTION OF THE ROW A, D AND G DITCH LOCATIONS. AT THESE LOCATIONS THERE WERE TWO SAMPLING EVENTS, HOWEVER CHLOROBENZENES WERE ANALYZED AT ONE EVENT (7/07).
6) ND = ½ THE DETECTION LIMIT.
7) SAMPLES FROM LOCATIONS IN BLACK WERE NOT ANALYZED FOR CHLOROBENZENE.

MARSH AREA BETWEEN AOC 1 AND AOC 8 (AOC 12)

NORTH-END ROW A ND
NORTH-END ROW C ND
NORTH-END ROW E 6.0
NORTH-END ROW I 188.0
NORTH-END ROW H 27.0
FLOW-TRIB 177.0
A-67S 1.0
A-67D 1.0
FLDA SEEP WATER 10.2
ROW A DITCH SEDIMENT 0.18
ROW A DITCH WATER 5.0
ROW D DITCH SEDIMENT 0.14
ROW D DITCH WATER 12.7
ROW G DITCH SEDIMENT 0.12
ROW G DITCH WATER 36.5
OF003-3
OF003-4
OUTFALL 003 ND
RIPRAP
OF003-2
OUTFALL 003
OF003-1
A-68S 1.0
A-68D 1.0
A-62S 470
A-62D 1.0
A-33S 1.0
A-33D 1.0
R-112 1.0
24" STM
SUMP 1
SUMP 2
FORMER STORM DRAINAGE POND (SWMU 6)
A-18 6.4

N

0 40 80ft

LEGEND

- PROPERTY BOUNDARY
- AOC 12 BOUNDARY
- BARRIER WALL LOCATION
- DITCH - SURFACE WATER FLOW PATH
- DRAINAGE PATH
- WATER TABLE WELL LOCATION (RECENT AND COLUMBIA)
- SEDIMENT SAMPLE LOCATION
- SURFACE WATER SAMPLE LOCATION

GROUNDWATER MAXIMUM CHLOROBENZENE CONCENTRATIONS (µg/L)

- ND - < 100
- 100 - < 1000
- ≥ 1000

SEDIMENT TOTAL CHLOROBENZENES CONCENTRATIONS (mg/kg)

- ND - < 33
- ≥ 33

SURFACE WATER TOTAL CHLOROBENZENES CONCENTRATIONS (µg/L)

- ND - < 620
- ≥ 620

figure 4.30.3

AOC 12 - MARSH AREA BETWEEN AOC 1 AND AOC 8 CHLOROBENZENE RESULTS FOR GROUNDWATER AND TOTAL CHLOROBENZENES RESULTS FOR SEDIMENT AND SURFACE WATER CORRECTIVE MEASURES STUDY

GSHI, Delaware City, Delaware

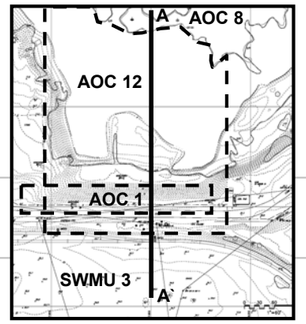
OXY Glenn Springs Holdings, Inc.

TOPOGRAPHIC SURVEY: TETRATECH, MARCH 2007, DELAWARE STATE PLANE, NAD 27, NGVD 29

07462-99912(047)GN-WA128 AUG 08/2008

NORTH

SOUTH



AOC 12
(Marsh Area Between AOC 1 and AOC 8)

AOC 1
(Standard Chlorine IM)

SWMU 3
(WL-3)

A

A`

Former Standard Chlorine Pipeline

Current Standard Chlorine Pipeline

Former Grade

Seeps

Phragmites

Tributary (STATION-J)

Deer Path

Road

Railroad

Fill

Waste

Water Table

Shallow Marsh Sediments

Recent Sediments

Columbia Sands

Potomac Formation

SCC-300
SCC-250
SCC-200
SCC-150
SCC-100
SCC-50
GCPT-17
SB-13
A-62S & A-62D
A-42S & A-42D
112
R-112
A-19
A-18
WB-11

Elevation (ft-msl)

40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80

Interpreted Geology Legend

- Shallow Marsh Sediments
- Fill Materials
- Recent & Fill: Peat, Silts, Clays, & Sands
- Columbia Sands
- Potomac Formation

SCALE (feet)

0 50 100

Vertical Exaggeration ~ 2.5 : 1

Notes:
Wells/Borings labeled in bold black are within 50 ft of the section
Wells/Borings labeled in gray are more than 50 ft from the section

figure 4.30.4

AOC 12 – MARSH AREA BETWEEN AOC 1 AND AOC 8
NORTH SOUTH CROSS-SECTION
CORRECTIVE MEASURES STUDY
OxyChem, Delaware City, Delaware

Glenn Springs Holdings, Inc.

TABLE 4.30.1
AOC 12 – MARSH AREA BETWEEN AOC 1 AND AOC 8
SUMMARY OF DOCUMENTATION
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY, DELAWARE

Date	Memo / Report
September 1983	*Phase II RCRA Facility Assessment of Solid Waste Management Units at Diamond Shamrock Chemical Company (* A.T. Kearney*)*
August 1992	*Description of Current Conditions Report (* ERM*)*
1993	*Phase I RCRA Facility Investigation Report*
1998	*Phase II RCRA Facilities Investigation Report*
December 2000	*Phase II RFI (*CRA Report 4*)*
August 2001	*Standard Chlorine Pipeline - Additional Sampling Work Plan (CRA Report 15)*
February 2004	*Remedial Design Interim Measures - Standard Chlorine Pipeline (CRA Report 26)*
March 2006	*Interim Measures Post Remediation Report – Standard Chlorine Pipeline (CRA Report 38)*
July 2006	*Response to EPA Comments Regarding Site Current Conditions Report (*GSHI*)*
March 2007	*2006 Annual Performance Monitoring Program (PMP) Report* (CRA Report 48)
April 2007	*Draft Human Health Risk Assessment Report* (CRA Report 49)
July 2007	*Additional Sampling Work Plan (CRA Report 50)*
May 2008	*AOC 12 2007 Investigation Results (CRA Report 55)*

TABLE 4.30.2
AOC 12 - GROUNDWATER IN THE VICINITY OF THE STANDARD CHLORINE PIPELINE
RELEVANT SAMPLE LOCATIONS
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY, DELAWARE

AOC	loc_name	sample_type_code	start_depth	end_depth	sample_matrix_code	sample_date	GW-1	Compare to Cleanup Goal
AOC 12	OUTFALL-003-01	N	0	0.5	Sediment	5/9/2007	no	yes
AOC 12	OUTFALL-003-02	N	0	0.5	Sediment	5/9/2007	no	yes
AOC 12	OUTFALL-003-03	N	0	0.5	Sediment	5/9/2007	no	yes
AOC 12	OUTFALL-003-04	N	0	0.5	Sediment	5/9/2007	no	yes
AOC 12	Row A Ditch Sediment	N	0	0.5	Sediment	7/30/2007	no	yes
AOC 12	Row D Ditch Sediment	N	0	0.5	Sediment	7/30/2007	no	yes
AOC 12	Row G Ditch Sediment	N	0	0.5	Sediment	7/30/2007	no	yes
AOC 12	FLDA seep water	N			Surface Water	9/10/2007	no	yes
AOC 12	FLDA seep water	N			Surface Water	7/30/2007	no	yes
AOC 12	FLOW-TRIB	N			Surface Water	5/24/2007	no	yes
AOC 12	NORTH-END-ROW-A	N			Surface Water	10/22/2007	no	yes
AOC 12	NORTH-END-ROW-C	N			Surface Water	10/22/2007	no	yes
AOC 12	NORTH-END-ROW-E	N			Surface Water	10/22/2007	no	yes
AOC 12	NORTH-END-ROW-H	N			Surface Water	10/22/2007	no	yes
AOC 12	NORTH-END-ROW-I	N			Surface Water	10/22/2007	no	yes
AOC 12	OUTFALL-003-Water	N			Surface Water	6/4/2007	no	yes
AOC 12	Row A Ditch water	N			Surface Water	7/30/2007	no	yes
AOC 12	Row A Ditch water	N			Surface Water	9/10/2007	no	yes
AOC 12	Row D Ditch water	N			Surface Water	7/30/2007	no	yes
AOC 12	Row D Ditch water	N			Surface Water	9/10/2007	no	yes
AOC 12	Row G Ditch water	N			Surface Water	7/30/2007	no	yes
AOC 12	Row G Ditch water	N			Surface Water	9/10/2007	no	yes
AOC 12	A-18	N			Groundwater	8/28/2007	no	yes
AOC 12	A-67D	N			Groundwater	2/20/2007	yes	yes
AOC 12	A-67D	N			Groundwater	5/16/2007	yes	yes
AOC 12	A-67D	N			Groundwater	8/22/2007	yes	yes
AOC 12	A-67D	N			Groundwater	11/14/2007	yes	yes
AOC 12	A-67S	N			Groundwater	2/20/2007	yes	yes
AOC 12	A-67S	N			Groundwater	5/16/2007	yes	yes
AOC 12	A-67S	N			Groundwater	8/22/2007	yes	yes
AOC 12	A-67S	N			Groundwater	11/14/2007	yes	yes
AOC 12	A-62D	N			Groundwater	8/27/2007	yes	yes
AOC 12	A-62S	N			Groundwater	8/27/2007	yes	yes
AOC 12	A-68D	N			Groundwater	8/22/2007	yes	yes
AOC 12	A-68S	N			Groundwater	8/22/2007	yes	yes
AOC 12	A-33D	N			Groundwater	8/22/2007	yes	yes
AOC 12	A-33S	N			Groundwater	8/22/2007	yes	yes
AOC 12	R-112	N			Groundwater	8/23/2007	yes	yes

Notes:

1. EPA Screening Criteria (GW-1) are discussed in Section 1 of the CMS Report.
2. Relevant data is compared to the Cleanup Goal for sediment, surface water, and groundwater.
3. N = Normal
4. FD = Field Duplicate

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
EXCEEDANCES WITH STATS
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY
2007

Sample Location:										*A-18*	*A-33D*
Sample ID:										*GW-7462-082807-MJW-86*	*GW-7462-082207-MJW-32*
Sample Date:										*8/28/2007*	*8/22/2007*
Parameters	*Units*	*Federal MCLs or RBCs*	*Criteria Type*	*Number of Samples*	*Number of Detects Above Criteria*	*Maximum Detected*	*Max Detected Location*	*Sample Date of Max Detected*	*Number of Times Above Standard*		
Volatile Organic Compounds											
1,3-Dichlorobenzene	ug/L	18.25	RBC	13	1	180	A-62S	8/27/2007	9.86	1 U	1 U
1,4-Dichlorobenzene	ug/L	75	MCL	13	1	340	A-62S	8/27/2007	4.53	7.4 B	1 U
Benzene	ug/L	5	MCL	13	1	19	A-62S	8/27/2007	3.80	0.7 U	0.7 U
Chlorobenzene	ug/L	100	MCL	13	1	470	A-62S	8/27/2007	4.70	6.4 B	1 U
Chloroform (Trichloromethane)	ug/L	0.155	RBC	13	4	2.4 B	A-18	8/28/2007	15.48	**2.4 B**	**1.4 B**
Methyl Tert Butyl Ether	ug/L	2.64	RBC	13	2	6	A-18	8/28/2007	2.27	**6.0**	1.2
Tetrachloroethene	ug/L	5	MCL	13	6	21	A-67D	8/22/2007	4.20	**6.9**	**16**
Metals											
Iron	ug/L	10950	RBC	11	2	60200	A-33S	8/22/2007	5.50	112	117
Iron (Dissolved)	ug/L	10950	RBC	11	2	58200	A-33S	8/22/2007	5.32	95.0 B	30.1 B
Manganese	ug/L	730	RBC	11	7	9740	A-67S	8/22/2007	13.34	**1010**	721
Manganese (Dissolved)	ug/L	730	RBC	11	8	9730	A-67S	8/22/2007	13.33	**860**	**764**
Mercury	ug/L	2	MCL	17	4	3.9	A-67D	2/20/2007	1.95	0.95	0.10 U
Mercury (Dissolved)	ug/l	2	MCL	17	4	2.6	A-67D	2/20/2007	1.30	1.0	0.10 U
Thallium	ug/L	2	MCL	11	5	7.1 J	A-33S	8/22/2007	3.55	2.2 U	**3.3 B**
Thallium (Dissolved)	ug/L	2	MCL	11	7	8.8 J	A-33S	8/22/2007	4.40	2.2 U	2.2 U
General Chemistry											
Ammonia	ug/L	209	RBC	11	5	5050	A-33S	8/22/2007	24.16	180	100 U

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K - High bias.
L - Low bias.
U - Not present at or above the associated value.
UL - Not present at or above the associated value. Low bias.
- Not analyzed.

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
EXCEEDANCES WITH STATS
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY
2007

Sample Location:				*A-33S*	*A-33S*	*A-62D*	*A-62S*	*A-67D*
Sample ID:				*GW-7462-082207-MJW-36*	*GW-7462-082207-MJW-37*	*GW-7462-082707-MJW-72*	*GW-7462-082707-MJW-73*	*GW-7462-022007-RM-08*
Sample Date:				*8/22/2007*	*8/22/2007*	*8/27/2007*	*8/27/2007*	*2/20/2007*
Parameters	*Units*	*Federal MCLs or RBCs*	*Criteria Type*					
Volatile Organic Compounds								
1,3-Dichlorobenzene	ug/L	18.25	RBC	1 U	1 U	1 U	**180**	-
1,4-Dichlorobenzene	ug/L	75	MCL	1 U	1 U	1 U	**340**	-
Benzene	ug/L	5	MCL	0.7 U	0.7 U	0.7 U	**19**	-
Chlorobenzene	ug/L	100	MCL	1 U	1 U	1 U	**470**	-
Chloroform (Trichloromethane)	ug/L	0.155	RBC	1 U	1 U	**1.0 B**	1 U	-
Methyl Tert Butyl Ether	ug/L	2.64	RBC	1	1	**3.8**	1 U	-
Tetrachloroethene	ug/L	5	MCL	1 U	1 U	**5.7**	1 U	-
Metals								
Iron	ug/L	10950	RBC	**60200**	**59600**	282	675	-
Iron (Dissolved)	ug/L	10950	RBC	**58200**	**56900**	30.7 B	37.9 B	-
Manganese	ug/L	730	RBC	**3940**	**3990**	**2150**	50.5	-
Manganese (Dissolved)	ug/L	730	RBC	**4010**	**3970**	**2070**	40.7	-
Mercury	ug/L	2	MCL	0.10 U	0.10 U	**3.6**	0.56	**3.9**
Mercury (Dissolved)	ug/l	2	MCL	0.10 U	0.10 U	1.4	0.60	**2.6**
Thallium	ug/L	2	MCL	**7.1 J**	**5.1 J**	2.2 U	2.2 U	-
Thallium (Dissolved)	ug/L	2	MCL	**8.8 J**	**7.1 J**	2.2 U	**2.5 J**	-
General Chemistry								
Ammonia	ug/L	209	RBC	**5050**	**4870**	**730**	100 U	-

Notes:
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BL - Not detected substantially above the level reported in laboratory or field blanks. Low bias.
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K - High bias.
L - Low bias.
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UL - Not present at or above the associated value. Low bias.
- Not analyzed.

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
EXCEEDANCES WITH STATS
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY
2007

Sample Location:				*A-67D*	*A-67D*	*A-67D*	*A-67S*	*A-67S*
Sample ID:				*GW-7462-051607-RM-08*	*GW-7462-082207-MJW-33*	*GW-7462-111407-MJW-10*	*GW-7462-022007-RM-09*	*GW-7462-051607-RM-09*
Sample Date:				*5/16/2007*	*8/22/2007*	*11/14/2007*	*2/20/2007*	*5/16/2007*
Parameters	*Units*	*Federal MCLs or RBCs*	*Criteria Type*					
Volatile Organic Compounds								
1,3-Dichlorobenzene	ug/L	18.25	RBC	-	1 U	1 U	-	-
1,4-Dichlorobenzene	ug/L	75	MCL	-	1 U	1 U	-	-
Benzene	ug/L	5	MCL	-	0.7 U	0.7 U	-	-
Chlorobenzene	ug/L	100	MCL	-	1 U	1 U	-	-
Chloroform (Trichloromethane)	ug/L	0.155	RBC	-	1 U	**1**	-	-
Methyl Tert Butyl Ether	ug/L	2.64	RBC	-	1 U	1 U	-	-
Tetrachloroethene	ug/L	5	MCL	-	**21**	**17**	-	-
Metals								
Iron	ug/L	10950	RBC	-	2970	-	-	-
Iron (Dissolved)	ug/L	10950	RBC	-	22.7 B	-	-	-
Manganese	ug/L	730	RBC	-	81.4	-	-	-
Manganese (Dissolved)	ug/L	730	RBC	-	41.7	-	-	-
Mercury	ug/L	2	MCL	**3.3**	**2.7**	1.1 J	0.10 U	0.99
Mercury (Dissolved)	ug/l	2	MCL	**2.2**	**2.5**	**2.5 J**	0.10 U	0.10 U
Thallium	ug/L	2	MCL	-	**2.6 B**	-	-	-
Thallium (Dissolved)	ug/L	2	MCL	-	**3.3 J**	-	-	-
General Chemistry								
Ammonia	ug/L	209	RBC	-	100 U	-	-	-

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JL - Estimated concentration. Low bias.
K - High bias.
L - Low bias.
U - Not present at or above the associated value.
UL - Not present at or above the associated value. Low bias.
- Not analyzed.

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
EXCEEDANCES WITH STATS
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY
2007

Sample Location:				*A-67S*	*A-67S*	*A-68D*	*A-68S*	*R-112*
Sample ID:				*GW-7462-082207-MJW-35*	*GW-7462-111407-MJW-11*	*GW-7462-082207-MJW-29*	*GW-7462-082207-MJW-30*	*GW-7462-082307-MJW-43*
Sample Date:				*8/22/2007*	*11/14/2007*	*8/22/2007*	*8/22/2007*	*8/23/2007*
Parameters	*Units*	*Federal MCLs or RBCs*	*Criteria Type*					
Volatile Organic Compounds								
1,3-Dichlorobenzene	ug/L	18.25	RBC	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	75	MCL	1 U	1 U	1 U	1 U	1 U
Benzene	ug/L	5	MCL	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Chlorobenzene	ug/L	100	MCL	1 U	1 U	1 U	1 U	1 U
Chloroform (Trichloromethane)	ug/L	0.155	RBC	1 U	1 U	1 U	1 U	1 U
Methyl Tert Butyl Ether	ug/L	2.64	RBC	1.3	2	1 U	1 U	1 U
Tetrachloroethene	ug/L	5	MCL	1 U	1 U	**17**	1 U	3
Metals								
Iron	ug/L	10950	RBC	919	-	173	62.2 J	26.6 J
Iron (Dissolved)	ug/L	10950	RBC	18.4 B	-	9.7 B	14.8 B	7.5 B
Manganese	ug/L	730	RBC	**9740**	-	90.4	**907**	**4610**
Manganese (Dissolved)	ug/L	730	RBC	**9730**	-	146	**911**	**5210**
Mercury	ug/L	2	MCL	0.18 J	0.49	0.10 U	0.10 U	0.10 U
Mercury (Dissolved)	ug/l	2	MCL	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Thallium	ug/L	2	MCL	**2.2 B**	-	2.2 U	2.2 U	3.5 U
Thallium (Dissolved)	ug/L	2	MCL	**2.9 J**	-	**3.9 J**	**3.6 J**	2.2 U
General Chemistry								
Ammonia	ug/L	209	RBC	**520**	-	100 U	100 U	**450**

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K - High bias.
L - Low bias.
U - Not present at or above the associated value.
UL - Not present at or above the associated value. Low bias.
- Not analyzed.

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-18*	*A-33D*	*A-33S*	*A-33S*	*A-62D*
Sample ID:				*GW-7462-082807-MJW-86*	*GW-7462-082207-MJW-32*	*GW-7462-082207-MJW-36*	*GW-7462-082207-MJW-37*	*GW-7462-082707-MJW-72*
Sample Date:				*8/28/2007*	*8/22/2007*	*8/22/2007*	*8/22/2007*	*8/27/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Volatile Organic Compounds								
1,1,1-Trichloroethane	ug/L	200	MCL	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	ug/L	0.0527	RBC	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	ug/L	5	MCL	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	ug/L	896.5	RBC	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	ug/L	7	MCL	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	ug/L	70	MCL	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	MCL	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	0.05	MCL	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	ug/L	600	MCL	2.9 B	1 U	1 U	1 U	1 U
1,2-Dichloroethane	ug/L	5	MCL	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	ug/L	5	MCL	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	ug/L	18.25	RBC	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	75	MCL	7.4 B	1 U	1 U	1 U	1 U
2-Butanone (Methyl Ethyl Ketone)	ug/L	6968	RBC	5 U	5 U	5 U	5 U	5 U
2-Hexanone	ug/L	-	-	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	6278	RBC	5 U	5 U	5 U	5 U	5 U
Acetone	ug/L	5475	RBC	5 U	5 U	5 U	5 U	4 B
Benzene	ug/L	5	MCL	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Bromodichloromethane	ug/L	0.17	RBC	1 U	1 U	1 U	1 U	1 U
Bromoform	ug/L	8.48	RBC	1 U	1 U	1 U	1 U	1 U
Bromomethane (Methyl Bromide)	ug/L	8.52	RBC	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	ug/L	1042	RBC	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	ug/L	5	MCL	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	ug/L	100	MCL	6.4 B	1 U	1 U	1 U	1 U
Chloroethane	ug/L	3.64	RBC	1 U	1 U	1 U	1 U	1 U
Chloroform (Trichloromethane)	ug/L	0.155	RBC	**2.4 B**	**1.4 B**	1 U	1 U	**1.0 B**
Chloromethane (Methyl Chloride)	ug/L	190	RBC	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	ug/L	70	MCL	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	ug/L	-	-	1 U	1 U	1 U	1 U	1 U
Cyclohexane	ug/L	12410	RBC	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	ug/L	0.126	RBC	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane (CFC-12)	ug/L	347	RBC	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	ug/L	700	MCL	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	ug/L	658	RBC	1 U	1 U	1 U	1 U	1 U
Methyl acetate	ug/L	6083	RBC	1 U	1 UL	1 UL	1 UL	1 U
Methyl cyclohexane	ug/L	6278	RBC	1 U	1 U	1 U	1 U	1 U
Methyl Tert Butyl Ether	ug/L	2.64	RBC	**6.0**	1.2	1	1	**3.8**
Methylene chloride	ug/L	5	MCL	1 U	1 U	1 U	1 U	1 U
Styrene	ug/L	100	MCL	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	ug/L	5	MCL	**6.9**	**16**	1 U	1 U	**5.7**
Toluene	ug/L	1000	MCL	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	ug/L	100	MCL	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	ug/L	-	-	1 U	1 U	1 U	1 U	1 U
Trichloroethene	ug/L	5	MCL	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (CFC-11)	ug/L	1288	RBC	1 U	1 U	1 U	1 U	1 U
Trifluorotrichloroethane (Freon 113)	ug/L	59375	RBC	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	ug/L	2	MCL	1 U	1 U	1 U	1 U	1 U

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-18*	*A-33D*	*A-33S*	*A-33S*	*A-62D*
Sample ID:				*GW-7462-082807-MJW-86*	*GW-7462-082207-MJW-32*	*GW-7462-082207-MJW-36*	*GW-7462-082207-MJW-37*	*GW-7462-082707-MJW-72*
Sample Date:				*8/28/2007*	*8/22/2007*	*8/22/2007*	*8/22/2007*	*8/27/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Xylene (total)	ug/L	10000	MCL	1 U	1 U	1 U	1 U	1 U
Metals								
Aluminum	ug/L	36500	RBC	10.4 U	45.5 B	17.5 J	15 U	84.5 J
Aluminum (Dissolved)	ug/L	36500	RBC	15.7 J	20.8 J	13.1 J	10.4 U	10.4 U
Antimony	ug/L	6	MCL	1.6 U	1.6 U	6.0 U	7.0 U	1.6 U
Antimony (Dissolved)	ug/L	6	MCL	1.6 U	1.6 U	1.7 J	1.6 U	1.6 U
Arsenic	ug/L	10	MCL	2.0 U	2.0 U	2.3 U	2.3 U	2.0 U
Arsenic (Dissolved)	ug/L	10	MCL	2.0 U	3.9 J	2.0 U	2.0 U	2.0 U
Barium	ug/L	2000	MCL	16.8 J	28.9 J	276	275	17.2 J
Barium (Dissolved)	ug/L	2000	MCL	18.7 J	25.9 J	280	274	15.4 J
Beryllium	ug/L	4	MCL	0.10 B	0.34 B	0.66 J	0.20 U	0.29 B
Beryllium (Dissolved)	ug/L	4	MCL	0.087 U	0.19 B	0.69 J	0.087 U	0.087 U
Cadmium	ug/L	5	MCL	0.29 J	0.34 J	0.28 U	0.46 U	0.63 J
Cadmium (Dissolved)	ug/L	5	MCL	0.53 J	0.61 B	1.5 B	0.57 B	0.63 J
Calcium	ug/L	-	-	26700	75000	62500	60300	31000
Calcium (Dissolved)	ug/L	-	-	26200	78700	59700	57700	28700
Chromium Total	ug/L	100	MCL	0.89 B	0.44 B	0.62 U	0.71 U	1.5 B
Chromium Total (Dissolved)	ug/L	100	MCL	1.8 B	0.88 B	0.57 J	0.33 U	0.87 B
Cobalt	ug/L	730	RBC	10.8 J	2.6 J	1.2 U	2.2 U	16.9 J
Cobalt (Dissolved)	ug/L	730	RBC	4.9 J	2.7 J	1.3 B	0.72 B	15.6 J
Copper	ug/L	1460	RBC	5.6 B	1.1 B	3.5 B	2.5 B	2.4 B
Copper (Dissolved)	ug/L	1460	RBC	17.8 J	0.44 U	3.2 B	2.4 B	3.7 B
Iron	ug/L	10950	RBC	112	117	**60200**	**59600**	282
Iron (Dissolved)	ug/L	10950	RBC	95.0 B	30.1 B	**58200**	**56900**	30.7 B
Lead	ug/L	15	-	1.1 U	1.1 U	1.7 U	2.2 U	1.1 U
Lead (Dissolved)	ug/L	15	-	2.1 J	1.1 U	1.1 U	1.1 U	1.1 J
Magnesium	ug/L	-	-	25700	122000	37300	36800	29500
Magnesium (Dissolved)	ug/L	-	-	24900	128000	39200	38300	27200
Manganese	ug/L	730	RBC	**1010**	721	**3940**	**3990**	**2150**
Manganese (Dissolved)	ug/L	730	RBC	**860**	**764**	**4010**	**3970**	**2070**
Mercury	ug/L	2	MCL	0.95	0.10 U	0.10 U	0.10 U	**3.6**
Mercury (Dissolved)	ug/l	2	MCL	1.0	0.10 U	0.10 U	0.10 U	1.4
Nickel	ug/L	730	RBC	6.0 J	18.2 J	2.4 B	1.5 B	11.3 J
Nickel (Dissolved)	ug/L	730	RBC	8.7 J	18.2 J	1.2 J	0.78 U	10.4 J
Potassium	ug/L	-	-	13100	50900	11900	12200	42200
Potassium (Dissolved)	ug/L	-	-	12500	54600	12500	12100	38900
Selenium	ug/L	50	MCL	3.0 U	3.0 U	8.8 B	6.9 B	3.0 U
Selenium (Dissolved)	ug/L	50	MCL	5.3 K	4.0 J	5.2	3.3 J	3.0 U
Silver	ug/L	183	RBC	0.51 U	1.1 J	0.81 J	0.64 U	0.74 J
Silver (Dissolved)	ug/L	183	RBC	0.51 U	1.5 B	1.2 J	1.0 J	0.65 J
Sodium	ug/L	-	-	181000	878000	149000	150000	480000
Sodium (Dissolved)	ug/L	-	-	176000	948000	155000	152000	442000
Thallium	ug/L	2	MCL	2.2 U	**3.3 B**	**7.1 J**	**5.1 J**	2.2 U
Thallium (Dissolved)	ug/L	2	MCL	2.2 U	2.2 U	**8.8 J**	**7.1 J**	2.2 U
Vanadium	ug/L	37	RBC	1.1 U	1.1 U	2.0 J	1.6 J	1.1 U
Vanadium (Dissolved)	ug/L	37	RBC	1.1 U	1.1 U	2.5 J	2.0 J	1.1 U
Zinc	ug/L	10950	RBC	19.2 B	38.3 B	10.1 B	7.8 B	31.9 B
Zinc (Dissolved)	ug/L	10950	RBC	24.4 B	40.7 B	2.6 U	2.6 U	19.2 B

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-18*	*A-33D*	*A-33S*	*A-33S*	*A-62D*
Sample ID:				*GW-7462-082807-MJW-86*	*GW-7462-082207-MJW-32*	*GW-7462-082207-MJW-36*	*GW-7462-082207-MJW-37*	*GW-7462-082707-MJW-72*
Sample Date:				*8/28/2007*	*8/22/2007*	*8/22/2007*	*8/22/2007*	*8/27/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Gas								
Ethane	ug/L	-	-	1 U	1 U	1 U	1 U	1 U
Ethene	ug/L	-	-	1 U	1 U	1 U	1 U	1 U
Methane	ug/L	-	-	1 U	3.3	11000	10000	25
General Chemistry								
Alkalinity, Total (as CaCO3)	ug/L	-	-	39000	1000 U	70200	68800	46400
Ammonia	ug/L	209	RBC	180	100 U	**5050**	**4870**	**730**
Calcium Carbonate	ug/L	-	-	220000	760000	340000	320000	260000
Carbon dioxide	ug/L	-	-	38700	32600 B	134000	151000	82700
Chloride	ug/L	-	-	232000	1530000	400000	388000	557000
Nitrate (as N)	ug/L	10000	MCL	3130	2500	100 U	100 U	1520
Nitrite (as N)	ug/L	1000	MCL	100 U	100 U	100 U	100 U	100 U
Standard plate count	cfu/mL	-	-	80 JL	200 L	50 L	75 L	40 JL
Sulfate	ug/L	-	-	197000	478000	11400	11600	360000
Sulfide	ug/L	-	-	2000 U	2000 U	2000 U	2000 U	2000 U
Total Dissolved Solids (TDS)	ug/L	-	-	832000	3360000	988000	942000	1400000
Total Kjeldahl Nitrogen (TKN)	ug/L	-	-	370	620	6530	7080	1210
Total Organic Carbon (TOC)	ug/L	-	-	5200	3000	4800	4900	7800
Total Suspended Solids (TSS)	ug/L	-	-	4000 U	4000 U	95000	87000	9000
Notes:								
B - Not detected substantially above the level reported in laboratory or field blanks.								
BL - Not detected substantially above the level reported in laboratory or field blanks. Low bias.								
J - Estimated concentration.								
JL - Estimated concentration. Low bias.								
K - High bias.								
L - Low bias.								
U - Not present at or above the associated value.								
UL - Not present at or above the associated value. Low bias.								
- Not analyzed.								

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-62S*	*A-67D*	*A-67D*	*A-67D*	*A-67D*
Sample ID:				*GW-7462-082707-MJW-73*	*GW-7462-022007-RM-08*	*GW-7462-051607-RM-08*	*GW-7462-082207-MJW-33*	*GW-7462-111407-MJW-10*
Sample Date:				*8/27/2007*	*2/20/2007*	*5/16/2007*	*8/22/2007*	*11/14/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Volatile Organic Compounds								
1,1,1-Trichloroethane	ug/L	200	MCL	1 U	-	-	1.2	1 U
1,1,2,2-Tetrachloroethane	ug/L	0.0527	RBC	1 U	-	-	1 U	1 U
1,1,2-Trichloroethane	ug/L	5	MCL	1 U	-	-	1 U	1 U
1,1-Dichloroethane	ug/L	896.5	RBC	1 U	-	-	1 U	1 U
1,1-Dichloroethene	ug/L	7	MCL	1 U	-	-	1.0	1 U
1,2,4-Trichlorobenzene	ug/L	70	MCL	6.5	-	-	1 U	1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	MCL	1 U	-	-	1 U	1 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	0.05	MCL	1 U	-	-	1 U	1 U
1,2-Dichlorobenzene	ug/L	600	MCL	17	-	-	1 U	1 U
1,2-Dichloroethane	ug/L	5	MCL	1 U	-	-	1 U	1 U
1,2-Dichloropropane	ug/L	5	MCL	1 U	-	-	1 U	1 U
1,3-Dichlorobenzene	ug/L	18.25	RBC	**180**	-	-	1 U	1 U
1,4-Dichlorobenzene	ug/L	75	MCL	**340**	-	-	1 U	1 U
2-Butanone (Methyl Ethyl Ketone)	ug/L	6968	RBC	5 U	-	-	5 U	5 U
2-Hexanone	ug/L	-	-	5 U	-	-	5 U	5 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	6278	RBC	5 U	-	-	5 U	5 U
Acetone	ug/L	5475	RBC	14 B	-	-	5 U	5 U
Benzene	ug/L	5	MCL	**19**	-	-	0.7 U	0.7 U
Bromodichloromethane	ug/L	0.17	RBC	1 U	-	-	1 U	1 U
Bromoform	ug/L	8.48	RBC	1 U	-	-	1 U	1 U
Bromomethane (Methyl Bromide)	ug/L	8.52	RBC	1 U	-	-	1 U	1 U
Carbon disulfide	ug/L	1042	RBC	1 U	-	-	1 U	1 U
Carbon tetrachloride	ug/L	5	MCL	1 U	-	-	1.7	3
Chlorobenzene	ug/L	100	MCL	**470**	-	-	1 U	1 U
Chloroethane	ug/L	3.64	RBC	1 U	-	-	1 U	1 U
Chloroform (Trichloromethane)	ug/L	0.155	RBC	1 U	-	-	1 U	**1**
Chloromethane (Methyl Chloride)	ug/L	190	RBC	1 U	-	-	1 U	1 U
cis-1,2-Dichloroethene	ug/L	70	MCL	1 U	-	-	1 U	1 U
cis-1,3-Dichloropropene	ug/L	-	-	1 U	-	-	1 U	1 U
Cyclohexane	ug/L	12410	RBC	1 U	-	-	1 U	1 U
Dibromochloromethane	ug/L	0.126	RBC	1 U	-	-	1 U	1 U
Dichlorodifluoromethane (CFC-12)	ug/L	347	RBC	1 U	-	-	1 U	1 U
Ethylbenzene	ug/L	700	MCL	1 U	-	-	1 U	1 U
Isopropylbenzene	ug/L	658	RBC	1 U	-	-	1 U	1 U
Methyl acetate	ug/L	6083	RBC	1 U	-	-	1 UL	1 U
Methyl cyclohexane	ug/L	6278	RBC	1 U	-	-	1 U	1 U
Methyl Tert Butyl Ether	ug/L	2.64	RBC	1 U	-	-	1 U	1 U
Methylene chloride	ug/L	5	MCL	1 U	-	-	1 U	1 U
Styrene	ug/L	100	MCL	1 U	-	-	1 U	1 U
Tetrachloroethene	ug/L	5	MCL	1 U	-	-	**21**	**17**
Toluene	ug/L	1000	MCL	1 U	-	-	1 U	1 U
trans-1,2-Dichloroethene	ug/L	100	MCL	1 U	-	-	1 U	1 U
trans-1,3-Dichloropropene	ug/L	-	-	1 U	-	-	1 U	1 U
Trichloroethene	ug/L	5	MCL	1 U	-	-	1 U	1 U
Trichlorofluoromethane (CFC-11)	ug/L	1288	RBC	1 U	-	-	1 U	1 U
Trifluorotrichloroethane (Freon 113)	ug/L	59375	RBC	1 U	-	-	1 U	1 U
Vinyl chloride	ug/L	2	MCL	1 U	-	-	1 U	1 U

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-62S*	*A-67D*	*A-67D*	*A-67D*	*A-67D*
Sample ID:				*GW-7462-082707-MJW-73*	*GW-7462-022007-RM-08*	*GW-7462-051607-RM-08*	*GW-7462-082207-MJW-33*	*GW-7462-111407-MJW-10*
Sample Date:				*8/27/2007*	*2/20/2007*	*5/16/2007*	*8/22/2007*	*11/14/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Xylene (total)	ug/L	10000	MCL	1 U	-	-	1 U	1 U
Metals								
Aluminum	ug/L	36500	RBC	438	-	-	892	-
Aluminum (Dissolved)	ug/L	36500	RBC	67.2 J	-	-	107 J	-
Antimony	ug/L	6	MCL	1.6 U	-	-	1.6 U	-
Antimony (Dissolved)	ug/L	6	MCL	1.6 U	-	-	1.6 U	-
Arsenic	ug/L	10	MCL	5.5 J	-	-	2.0 U	-
Arsenic (Dissolved)	ug/L	10	MCL	5.5 J	-	-	2.6 J	-
Barium	ug/L	2000	MCL	16.7 J	-	-	27.2 J	-
Barium (Dissolved)	ug/L	2000	MCL	15.7 J	-	-	21.4 J	-
Beryllium	ug/L	4	MCL	0.12 B	-	-	0.47 B	-
Beryllium (Dissolved)	ug/L	4	MCL	0.087 U	-	-	0.14 B	-
Cadmium	ug/L	5	MCL	0.16 U	-	-	0.16 U	-
Cadmium (Dissolved)	ug/L	5	MCL	0.38 J	-	-	0.33 B	-
Calcium	ug/L	-	-	980 J	-	-	20700	-
Calcium (Dissolved)	ug/L	-	-	1000 J	-	-	20900	-
Chromium Total	ug/L	100	MCL	2.3 J	-	-	30.5	-
Chromium Total (Dissolved)	ug/L	100	MCL	0.79 B	-	-	28.7 B	-
Cobalt	ug/L	730	RBC	1.3 J	-	-	2.0 J	-
Cobalt (Dissolved)	ug/L	730	RBC	1.3 J	-	-	1.0 J	-
Copper	ug/L	1460	RBC	3.0 B	-	-	1.2 B	-
Copper (Dissolved)	ug/L	1460	RBC	4.2 B	-	-	0.98 B	-
Iron	ug/L	10950	RBC	675	-	-	2970	-
Iron (Dissolved)	ug/L	10950	RBC	37.9 B	-	-	22.7 B	-
Lead	ug/L	15	-	1.1 U	-	-	1.1 U	-
Lead (Dissolved)	ug/L	15	-	1.1 U	-	-	1.1 U	-
Magnesium	ug/L	-	-	488 J	-	-	30800	-
Magnesium (Dissolved)	ug/L	-	-	471 B	-	-	30900	-
Manganese	ug/L	730	RBC	50.5	-	-	81.4	-
Manganese (Dissolved)	ug/L	730	RBC	40.7	-	-	41.7	-
Mercury	ug/L	2	MCL	0.56	**3.9**	**3.3**	**2.7**	1.1 J
Mercury (Dissolved)	ug/l	2	MCL	0.60	**2.6**	**2.2**	**2.5**	**2.5 J**
Nickel	ug/L	730	RBC	3.4 J	-	-	7.3 J	-
Nickel (Dissolved)	ug/L	730	RBC	4.1 J	-	-	5.2 J	-
Potassium	ug/L	-	-	134000	-	-	145000	-
Potassium (Dissolved)	ug/L	-	-	138000	-	-	148000	-
Selenium	ug/L	50	MCL	3.0 U	-	-	3.3 B	-
Selenium (Dissolved)	ug/L	50	MCL	3.0 U	-	-	4.0 J	-
Silver	ug/L	183	RBC	1.8 J	-	-	1.9 J	-
Silver (Dissolved)	ug/L	183	RBC	0.51 U	-	-	0.99 B	-
Sodium	ug/L	-	-	732000	-	-	640000	-
Sodium (Dissolved)	ug/L	-	-	714000	-	-	643000	-
Thallium	ug/L	2	MCL	2.2 U	-	-	**2.6 B**	-
Thallium (Dissolved)	ug/L	2	MCL	**2.5 J**	-	-	**3.3 J**	-
Vanadium	ug/L	37	RBC	4.1 J	-	-	3.8 J	-
Vanadium (Dissolved)	ug/L	37	RBC	2.6 J	-	-	1.1 U	-
Zinc	ug/L	10950	RBC	15.9 B	-	-	20.3 B	-
Zinc (Dissolved)	ug/L	10950	RBC	8.8 B	-	-	15.3 B	-

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-62S*	*A-67D*	*A-67D*	*A-67D*	*A-67D*
Sample ID:				*GW-7462-082707-MJW-73*	*GW-7462-022007-RM-08*	*GW-7462-051607-RM-08*	*GW-7462-082207-MJW-33*	*GW-7462-111407-MJW-10*
Sample Date:				*8/27/2007*	*2/20/2007*	*5/16/2007*	*8/22/2007*	*11/14/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Gas								
Ethane	ug/L	-	-	5.9	-	-	1 UL	-
Ethene	ug/L	-	-	1 U	-	-	1 UL	-
Methane	ug/L	-	-	1500	-	-	2.4 L	-
General Chemistry								
Alkalinity, Total (as CaCO3)	ug/L	-	-	209000	-	-	51400	-
Ammonia	ug/L	209	RBC	100 U	-	-	100 U	-
Calcium Carbonate	ug/L	-	-	5000 U	-	-	200000	-
Carbon dioxide	ug/L	-	-	1000 U	-	-	44000 B	-
Chloride	ug/L	-	-	618000	-	-	928000	-
Nitrate (as N)	ug/L	10000	MCL	560	-	-	2060	-
Nitrite (as N)	ug/L	1000	MCL	100 U	-	-	200	-
Standard plate count	cfu/mL	-	-	1100 JL	-	-	95 L	-
Sulfate	ug/L	-	-	48000	-	-	214000	-
Sulfide	ug/L	-	-	2000 U	-	-	2000 U	-
Total Dissolved Solids (TDS)	ug/L	-	-	2080000	-	-	1840000	-
Total Kjeldahl Nitrogen (TKN)	ug/L	-	-	2280	-	-	680	-
Total Organic Carbon (TOC)	ug/L	-	-	19100	-	-	2600	-
Total Suspended Solids (TSS)	ug/L	-	-	12000	-	-	25000	-
Notes:								
B - Not detected substantially above the level reported in laboratory or field blanks.								
BL - Not detected substantially above the level reported in laboratory or field blanks. Low bias.								
J - Estimated concentration.								
JL - Estimated concentration. Low bias.								
K - High bias.								
L - Low bias.								
U - Not present at or above the associated value.								
UL - Not present at or above the associated value. Low bias.								
- Not analyzed.								

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-67S*	*A-67S*	*A-67S*	*A-67S*	*A-68D*
Sample ID:				*GW-7462-022007-RM-09*	*GW-7462-051607-RM-09*	*GW-7462-082207-MJW-35*	*GW-7462-111407-MJW-11*	*GW-7462-082207-MJW-29*
Sample Date:				*2/20/2007*	*5/16/2007*	*8/22/2007*	*11/14/2007*	*8/22/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Volatile Organic Compounds								
1,1,1-Trichloroethane	ug/L	200	MCL	-	-	1 U	1 U	1.1
1,1,2,2-Tetrachloroethane	ug/L	0.0527	RBC	-	-	1 U	1 U	1 U
1,1,2-Trichloroethane	ug/L	5	MCL	-	-	1 U	1 U	1 U
1,1-Dichloroethane	ug/L	896.5	RBC	-	-	1 U	1 U	1 U
1,1-Dichloroethene	ug/L	7	MCL	-	-	1 U	1 U	1.0
1,2,4-Trichlorobenzene	ug/L	70	MCL	-	-	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	MCL	-	-	1 U	1 U	1 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	0.05	MCL	-	-	1 U	1 U	1 U
1,2-Dichlorobenzene	ug/L	600	MCL	-	-	1 U	1 U	1 U
1,2-Dichloroethane	ug/L	5	MCL	-	-	1 U	1 U	1 U
1,2-Dichloropropane	ug/L	5	MCL	-	-	1 U	1 U	1 U
1,3-Dichlorobenzene	ug/L	18.25	RBC	-	-	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	75	MCL	-	-	1 U	1 U	1 U
2-Butanone (Methyl Ethyl Ketone)	ug/L	6968	RBC	-	-	5 U	5 U	5 U
2-Hexanone	ug/L	-	-	-	-	5 U	5 U	5 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	6278	RBC	-	-	5 U	5 U	5 U
Acetone	ug/L	5475	RBC	-	-	5 U	5 U	5 U
Benzene	ug/L	5	MCL	-	-	0.7 U	0.7 U	0.7 U
Bromodichloromethane	ug/L	0.17	RBC	-	-	1 U	1 U	1 U
Bromoform	ug/L	8.48	RBC	-	-	1 U	1 U	1 U
Bromomethane (Methyl Bromide)	ug/L	8.52	RBC	-	-	1 U	1 U	1 U
Carbon disulfide	ug/L	1042	RBC	-	-	1 U	1 U	1 U
Carbon tetrachloride	ug/L	5	MCL	-	-	1 U	1 U	1 U
Chlorobenzene	ug/L	100	MCL	-	-	1 U	1 U	1 U
Chloroethane	ug/L	3.64	RBC	-	-	1 U	1 U	1 U
Chloroform (Trichloromethane)	ug/L	0.155	RBC	-	-	1 U	1 U	1 U
Chloromethane (Methyl Chloride)	ug/L	190	RBC	-	-	1 U	1 U	1 U
cis-1,2-Dichloroethene	ug/L	70	MCL	-	-	1 U	1 U	1 U
cis-1,3-Dichloropropene	ug/L	-	-	-	-	1 U	1 U	1 U
Cyclohexane	ug/L	12410	RBC	-	-	1 U	1 U	1 U
Dibromochloromethane	ug/L	0.126	RBC	-	-	1 U	1 U	1 U
Dichlorodifluoromethane (CFC-12)	ug/L	347	RBC	-	-	1 U	1 U	1 U
Ethylbenzene	ug/L	700	MCL	-	-	1 U	1 U	1 U
Isopropylbenzene	ug/L	658	RBC	-	-	1 U	1 U	1 U
Methyl acetate	ug/L	6083	RBC	-	-	1 UL	1 U	1 UL
Methyl cyclohexane	ug/L	6278	RBC	-	-	1 U	1 U	1 U
Methyl Tert Butyl Ether	ug/L	2.64	RBC	-	-	1.3	2	1 U
Methylene chloride	ug/L	5	MCL	-	-	1 U	1 U	1 U
Styrene	ug/L	100	MCL	-	-	1 U	1 U	1 U
Tetrachloroethene	ug/L	5	MCL	-	-	1 U	1 U	**17**
Toluene	ug/L	1000	MCL	-	-	1 U	1 U	1 U
trans-1,2-Dichloroethene	ug/L	100	MCL	-	-	1 U	1 U	1 U
trans-1,3-Dichloropropene	ug/L	-	-	-	-	1 U	1 U	1 U
Trichloroethene	ug/L	5	MCL	-	-	1 U	1 U	1 U
Trichlorofluoromethane (CFC-11)	ug/L	1288	RBC	-	-	1 U	1 U	1 U
Trifluorotrichloroethane (Freon 113)	ug/L	59375	RBC	-	-	1 U	1 U	1 U
Vinyl chloride	ug/L	2	MCL	-	-	1 U	1 U	1 U

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-67S*	*A-67S*	*A-67S*	*A-67S*	*A-68D*
Sample ID:				*GW-7462-022007-RM-09*	*GW-7462-051607-RM-09*	*GW-7462-082207-MJW-35*	*GW-7462-111407-MJW-11*	*GW-7462-082207-MJW-29*
Sample Date:				*2/20/2007*	*5/16/2007*	*8/22/2007*	*11/14/2007*	*8/22/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Xylene (total)	ug/L	10000	MCL	-	-	1 U	1 U	1 U
Metals								
Aluminum	ug/L	36500	RBC	-	-	742	-	69.7 B
Aluminum (Dissolved)	ug/L	36500	RBC	-	-	11.7 J	-	23.8 J
Antimony	ug/L	6	MCL	-	-	1.6 U	-	1.6 U
Antimony (Dissolved)	ug/L	6	MCL	-	-	1.6 U	-	1.6 U
Arsenic	ug/L	10	MCL	-	-	2.0 U	-	2.0 U
Arsenic (Dissolved)	ug/L	10	MCL	-	-	2.0 U	-	2.0 U
Barium	ug/L	2000	MCL	-	-	58.2 J	-	22.7 J
Barium (Dissolved)	ug/L	2000	MCL	-	-	54.1 J	-	24.6 J
Beryllium	ug/L	4	MCL	-	-	0.30 B	-	0.28 B
Beryllium (Dissolved)	ug/L	4	MCL	-	-	0.087 U	-	0.20 B
Cadmium	ug/L	5	MCL	-	-	0.39 J	-	0.16 U
Cadmium (Dissolved)	ug/L	5	MCL	-	-	0.68 B	-	0.26 B
Calcium	ug/L	-	-	-	-	22600	-	16300
Calcium (Dissolved)	ug/L	-	-	-	-	22900	-	17400
Chromium Total	ug/L	100	MCL	-	-	2.2 B	-	0.89 B
Chromium Total (Dissolved)	ug/L	100	MCL	-	-	1.8 B	-	1.2 B
Cobalt	ug/L	730	RBC	-	-	61.2	-	0.43 J
Cobalt (Dissolved)	ug/L	730	RBC	-	-	66.0	-	0.85 J
Copper	ug/L	1460	RBC	-	-	1.5 B	-	0.44 U
Copper (Dissolved)	ug/L	1460	RBC	-	-	1.3 B	-	0.44 U
Iron	ug/L	10950	RBC	-	-	919	-	173
Iron (Dissolved)	ug/L	10950	RBC	-	-	18.4 B	-	9.7 B
Lead	ug/L	15	-	-	-	1.1 U	-	1.1 U
Lead (Dissolved)	ug/L	15	-	-	-	1.1 U	-	1.1 U
Magnesium	ug/L	-	-	-	-	22000	-	24600
Magnesium (Dissolved)	ug/L	-	-	-	-	22100	-	25400
Manganese	ug/L	730	RBC	-	-	**9740**	-	90.4
Manganese (Dissolved)	ug/L	730	RBC	-	-	**9730**	-	146
Mercury	ug/L	2	MCL	0.10 U	0.99	0.18 J	0.49	0.10 U
Mercury (Dissolved)	ug/l	2	MCL	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Nickel	ug/L	730	RBC	-	-	15.4 J	-	2.5 B
Nickel (Dissolved)	ug/L	730	RBC	-	-	14.8 J	-	2.3 J
Potassium	ug/L	-	-	-	-	34500	-	12600
Potassium (Dissolved)	ug/L	-	-	-	-	34600	-	13200
Selenium	ug/L	50	MCL	-	-	3.0 U	-	3.9 B
Selenium (Dissolved)	ug/L	50	MCL	-	-	3.8 J	-	4.1 J
Silver	ug/L	183	RBC	-	-	2.8 J	-	0.61 J
Silver (Dissolved)	ug/L	183	RBC	-	-	1.6 B	-	0.77 B
Sodium	ug/L	-	-	-	-	159000	-	117000
Sodium (Dissolved)	ug/L	-	-	-	-	160000	-	120000
Thallium	ug/L	2	MCL	-	-	**2.2 B**	-	2.2 U
Thallium (Dissolved)	ug/L	2	MCL	-	-	**2.9 J**	-	**3.9 J**
Vanadium	ug/L	37	RBC	-	-	2.0 J	-	1.1 U
Vanadium (Dissolved)	ug/L	37	RBC	-	-	1.1 U	-	1.1 U
Zinc	ug/L	10950	RBC	-	-	2.6 U	-	25.7 B
Zinc (Dissolved)	ug/L	10950	RBC	-	-	2.6 U	-	11.3 B

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-67S*	*A-67S*	*A-67S*	*A-67S*	*A-68D*
Sample ID:				*GW-7462-022007-RM-09*	*GW-7462-051607-RM-09*	*GW-7462-082207-MJW-35*	*GW-7462-111407-MJW-11*	*GW-7462-082207-MJW-29*
Sample Date:				*2/20/2007*	*5/16/2007*	*8/22/2007*	*11/14/2007*	*8/22/2007*
		Federal	*Criteria*					
Parameters	*Units*	*MCLs or RBCs*	*Type*					
Gas								
Ethane	ug/L	-	-	-	-	2.8	-	1 U
Ethene	ug/L	-	-	-	-	1 U	-	1 U
Methane	ug/L	-	-	-	-	67	-	1 U
General Chemistry								
Alkalinity, Total (as CaCO3)	ug/L	-	-	-	-	164000	-	32000
Ammonia	ug/L	209	RBC	-	-	**520**	-	100 U
Calcium Carbonate	ug/L	-	-	-	-	240000	-	160000
Carbon dioxide	ug/L	-	-	-	-	97700	-	36100 B
Chloride	ug/L	-	-	-	-	201000	-	173000
Nitrate (as N)	ug/L	10000	MCL	-	-	100 U	-	2400
Nitrite (as N)	ug/L	1000	MCL	-	-	100 U	-	100 U
Standard plate count	cfu/mL	-	-	-	-	10 L	-	30 L
Sulfate	ug/L	-	-	-	-	64000	-	123000
Sulfide	ug/L	-	-	-	-	2000 U	-	2000 U
Total Dissolved Solids (TDS)	ug/L	-	-	-	-	614000	-	516000
Total Kjeldahl Nitrogen (TKN)	ug/L	-	-	-	-	2880	-	690
Total Organic Carbon (TOC)	ug/L	-	-	-	-	4600	-	1900
Total Suspended Solids (TSS)	ug/L	-	-	-	-	9000	-	6000
Notes:								
B - Not detected substantially above the level reported in laboratory or field blanks.								
BL - Not detected substantially above the level reported in laboratory or field blanks. Low bias.								
J - Estimated concentration.								
JL - Estimated concentration. Low bias.								
K - High bias.								
L - Low bias.								
U - Not present at or above the associated value.								
UL - Not present at or above the associated value. Low bias.								
- Not analyzed.								

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-68S*	*R-112*
Sample ID:				*GW-7462-082207-MJW-30*	*GW-7462-082307-MJW-43*
Sample Date:				*8/22/2007*	*8/23/2007*
		Federal	*Criteria*		
Parameters	*Units*	*MCLs or RBCs*	*Type*		
Volatile Organic Compounds					
1,1,1-Trichloroethane	ug/L	200	MCL	1 U	1 U
1,1,2,2-Tetrachloroethane	ug/L	0.0527	RBC	1 U	1 U
1,1,2-Trichloroethane	ug/L	5	MCL	1 U	1 U
1,1-Dichloroethane	ug/L	896.5	RBC	1 U	1 U
1,1-Dichloroethene	ug/L	7	MCL	1 U	1 U
1,2,4-Trichlorobenzene	ug/L	70	MCL	1 U	1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	MCL	1 U	1 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	0.05	MCL	1 U	1 U
1,2-Dichlorobenzene	ug/L	600	MCL	1 U	1 U
1,2-Dichloroethane	ug/L	5	MCL	1 U	1 U
1,2-Dichloropropane	ug/L	5	MCL	1 U	1 U
1,3-Dichlorobenzene	ug/L	18.25	RBC	1 U	1 U
1,4-Dichlorobenzene	ug/L	75	MCL	1 U	1 U
2-Butanone (Methyl Ethyl Ketone)	ug/L	6968	RBC	5 U	5 U
2-Hexanone	ug/L	-	-	5 U	5 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	6278	RBC	5 U	5 U
Acetone	ug/L	5475	RBC	5 U	5 U
Benzene	ug/L	5	MCL	0.7 U	0.7 U
Bromodichloromethane	ug/L	0.17	RBC	1 U	1 U
Bromoform	ug/L	8.48	RBC	1 U	1 U
Bromomethane (Methyl Bromide)	ug/L	8.52	RBC	1 U	1 U
Carbon disulfide	ug/L	1042	RBC	1 U	1 U
Carbon tetrachloride	ug/L	5	MCL	1 U	1 U
Chlorobenzene	ug/L	100	MCL	1 U	1 U
Chloroethane	ug/L	3.64	RBC	1 U	1 U
Chloroform (Trichloromethane)	ug/L	0.155	RBC	1 U	1 U
Chloromethane (Methyl Chloride)	ug/L	190	RBC	1 U	1 U
cis-1,2-Dichloroethene	ug/L	70	MCL	1 U	1 U
cis-1,3-Dichloropropene	ug/L	-	-	1 U	1 U
Cyclohexane	ug/L	12410	RBC	1 U	1 U
Dibromochloromethane	ug/L	0.126	RBC	1 U	1 U
Dichlorodifluoromethane (CFC-12)	ug/L	347	RBC	1 U	1 U
Ethylbenzene	ug/L	700	MCL	1 U	1 U
Isopropylbenzene	ug/L	658	RBC	1 U	1 U
Methyl acetate	ug/L	6083	RBC	1 UL	1 UL
Methyl cyclohexane	ug/L	6278	RBC	1 U	1 U
Methyl Tert Butyl Ether	ug/L	2.64	RBC	1 U	1 U
Methylene chloride	ug/L	5	MCL	1 U	1 U
Styrene	ug/L	100	MCL	1 U	1 U
Tetrachloroethene	ug/L	5	MCL	1 U	3
Toluene	ug/L	1000	MCL	1 U	1 U
trans-1,2-Dichloroethene	ug/L	100	MCL	1 U	1 U
trans-1,3-Dichloropropene	ug/L	-	-	1 U	1 U
Trichloroethene	ug/L	5	MCL	1 U	1 U
Trichlorofluoromethane (CFC-11)	ug/L	1288	RBC	1 U	1 U
Trifluorotrichloroethane (Freon 113)	ug/L	59375	RBC	1 U	1 U
Vinyl chloride	ug/L	2	MCL	1 U	1 U

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				*A-68S*	*R-112*
Sample ID:				*GW-7462-082207-MJW-30*	*GW-7462-082307-MJW-43*
Sample Date:				*8/22/2007*	*8/23/2007*
		Federal	*Criteria*		
Parameters	*Units*	*MCLs or RBCs*	*Type*		
Xylene (total)	ug/L	10000	MCL	1 U	1 U
Metals					
Aluminum	ug/L	36500	RBC	91.8 J	16.9 U
Aluminum (Dissolved)	ug/L	36500	RBC	23.9 J	10.4 U
Antimony	ug/L	6	MCL	1.6 U	6.0 U
Antimony (Dissolved)	ug/L	6	MCL	1.6 U	1.6 U
Arsenic	ug/L	10	MCL	2.0 U	3.2 J
Arsenic (Dissolved)	ug/L	10	MCL	2.0 U	2.0 U
Barium	ug/L	2000	MCL	36.6 J	19.4 J
Barium (Dissolved)	ug/L	2000	MCL	34.9 J	22.2 J
Beryllium	ug/L	4	MCL	0.26 B	0.076 U
Beryllium (Dissolved)	ug/L	4	MCL	0.15 B	0.087 U
Cadmium	ug/L	5	MCL	0.16 U	0.28 U
Cadmium (Dissolved)	ug/L	5	MCL	0.16 U	0.82 B
Calcium	ug/L	-	-	18900	122000
Calcium (Dissolved)	ug/L	-	-	18800	141000
Chromium Total	ug/L	100	MCL	0.39 B	0.62 U
Chromium Total (Dissolved)	ug/L	100	MCL	0.71 B	0.73 J
Cobalt	ug/L	730	RBC	3.8 J	14.4 J
Cobalt (Dissolved)	ug/L	730	RBC	3.4 J	17.0 J
Copper	ug/L	1460	RBC	0.44 U	2.6 B
Copper (Dissolved)	ug/L	1460	RBC	0.44 U	5.4 B
Iron	ug/L	10950	RBC	62.2 J	26.6 J
Iron (Dissolved)	ug/L	10950	RBC	14.8 B	7.5 B
Lead	ug/L	15	-	1.1 U	1.7 U
Lead (Dissolved)	ug/L	15	-	1.1 U	1.1 U
Magnesium	ug/L	-	-	19500	32600
Magnesium (Dissolved)	ug/L	-	-	19300	40000
Manganese	ug/L	730	RBC	**907**	**4610**
Manganese (Dissolved)	ug/L	730	RBC	**911**	**5210**
Mercury	ug/L	2	MCL	0.10 U	0.10 U
Mercury (Dissolved)	ug/l	2	MCL	0.10 U	0.10 U
Nickel	ug/L	730	RBC	7.4 J	12.4 J
Nickel (Dissolved)	ug/L	730	RBC	6.3 J	13.2 J
Potassium	ug/L	-	-	8640	47700
Potassium (Dissolved)	ug/L	-	-	8780	54800
Selenium	ug/L	50	MCL	3.0 U	4.1 K
Selenium (Dissolved)	ug/L	50	MCL	3.5 J	3.0 U
Silver	ug/L	183	RBC	0.60 J	0.64 U
Silver (Dissolved)	ug/L	183	RBC	0.84 B	0.88 J
Sodium	ug/L	-	-	72700	530000
Sodium (Dissolved)	ug/L	-	-	71800	605000
Thallium	ug/L	2	MCL	2.2 U	3.5 U
Thallium (Dissolved)	ug/L	2	MCL	**3.6 J**	2.2 U
Vanadium	ug/L	37	RBC	1.1 U	0.86 U
Vanadium (Dissolved)	ug/L	37	RBC	1.1 U	1.1 U
Zinc	ug/L	10950	RBC	8.3 B	107
Zinc (Dissolved)	ug/L	10950	RBC	6.5 B	53.3

ANALYTICAL RESULTS SUMMARY
GROUNDWATER SAMPLING SCREENED TO GW-1
GLENN SPRINGS HOLDINGS, INC.
DELAWARE CITY

Sample Location:				***A-68S***	***R-112***
Sample ID:				***GW-7462-082207-MJW-30***	***GW-7462-082307-MJW-43***
Sample Date:				***8/22/2007***	***8/23/2007***
		Federal	***Criteria***		
Parameters	***Units***	***MCLs or RBCs***	***Type***		
Gas					
Ethane	ug/L	-	-	1 U	1 U
Ethene	ug/L	-	-	1 U	1 U
Methane	ug/L	-	-	1 U	280
General Chemistry					
Alkalinity, Total (as CaCO3)	ug/L	-	-	46600	142000
Ammonia	ug/L	209	RBC	100 U	**450**
Calcium Carbonate	ug/L	-	-	100000	520000
Carbon dioxide	ug/L	-	-	34300 B	125000
Chloride	ug/L	-	-	117000	768000
Nitrate (as N)	ug/L	10000	MCL	1500	100 U
Nitrite (as N)	ug/L	1000	MCL	100 U	100 U
Standard plate count	cfu/mL	-	-	40 L	50 BL
Sulfate	ug/L	-	-	62000	605000
Sulfide	ug/L	-	-	2000 U	2000 U
Total Dissolved Solids (TDS)	ug/L	-	-	372000	2280000
Total Kjeldahl Nitrogen (TKN)	ug/L	-	-	880	550
Total Organic Carbon (TOC)	ug/L	-	-	2600	5500
Total Suspended Solids (TSS)	ug/L	-	-	4000 U	4000 U
Notes:					
B - Not detected substantially above the level reported in laboratory or field blanks.					
BL - Not detected substantially above the level reported in laboratory or field blanks. Low bias.					
J - Estimated concentration.					
JL - Estimated concentration. Low bias.					
K - High bias.					
L - Low bias.					
U - Not present at or above the associated value.					
UL - Not present at or above the associated value. Low bias.					
- Not analyzed.					